

Amendment and Response

Applicant: David C. Lowery et al.

Serial No.: 10/677,120

Filed: October 1, 2003

Docket No.: 10354US01

Title: MAGNETIC RECORDING TAPE MEDIA HAVING LOW ABRASIVITY AND RELIABLE MEDIA PERFORMANCE

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REMARKS

This communication is responsive to the Office Action mailed March 21, 2007. In that Office Action, claims 1-10 and 16-24 were rejected under 35 U.S.C. § 112, first paragraph; claims 1-10, 16, 19, and 21-23 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious, over Mori et al, U.S. Patent No. 5,510,168 ("Mori"); and claims 1-10, 16-19, and 21-24 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious, over Kakuta et al, U.S. Patent No. 6,037,051 ("Kakuta").

With this Response, claims 25-27 are newly presented. Claims 1-10 and 16-27 remain pending in the application and are presented for consideration and allowance.

35 U.S.C. § 112, first paragraph Rejections

Claims 1-10 and 16-24 were rejected under 35 U.S.C. § 112, first paragraph. The Examiner's position stated at pages 2-3 is that the specification does not enable any person skilled in the art to make the invention commensurate with the scope of the claims since the claims are not limited to a medium having an Abrasivity Index that is achieved by the combination of burnishing conditions and type of materials in the upper layer as supported by the specification at page 15. We disagree.

Under law, the claims need not be limited to a structure that is limited to the specific materials or processes described in the Examples.

The position of the Federal Circuit is that although a specification often describes various specific embodiments of an invention, "we have repeatedly warned against confining the claims to those embodiments." *Lizard Tech, Inc. v. Earth Resource Mapping, Inc.*, 77 U.S.P.Q.2d 1391, 1394 (citing to *Phillips*, 415 F.3d at 1326-27). Federal Circuit precedent has emphasized that the disclosure in the written description of a single embodiment does not limit the claimed invention to features described in the disclosed embodiment. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906, 69 U.S.P.Q.2d 1801 (Fed. Cir. 2004). In fact, the Federal Circuit has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the

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patent must be construed as being limited to that embodiment. Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction. *Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Commission*, 72 U.S.P.Q.2d 1609, 1619 (Fed. Cir. 2004) (quoting *Teleflex, Inc. v. Ficosa N. AM. Corp.*, 299 F.3d 1313, 1327, 63 U.S.P.Q.2d 1374 (Fed. Cir. 2002)).

Applicants have never demonstrated any intention to limit the scope of the claims by using words or expressions of manifest exclusion or restriction. Thus, there is no basis under law for the Examiner's position that the claims must be limited to a structure that is limited to the specific materials or processes described in the examples. Consequently, it is appropriate that the claims be given their broadest reasonable interpretation that is consistent with the specification.

In addition, there is ample support and teaching in the application as filed for one reasonably skilled in the art to make and use the invention from the disclosure and information known in the art without undue experimentation. It is that it is axiomatic that an inventor is not required to limit the claims to a specific example or examples disclosed in his application. *Beal v. Shuman*, 212 USPQ 291, 293 (Bd. Pat. App. & Int. 1980). Concerning the breadth of the claims, “[T]he only relevant concern should be whether the scope of the enablement provided to one of skill in the art is commensurate with the scope of protection sought by the claims.” *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1244, 68 USPQ2d 1280, 1287 (Fed. Cir. 2003). “When analyzing the enabled scope of a claim, the teachings of the specification must not be ignored because claims are to be given their broadest reasonable interpretation that is consistent with the specification.” *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 957, 220 USPQ 592, 597 (Fed. Cir. 1983).

The claims require a magnetic recording medium having a magnetic coating characterized by Abrasivity Index of not greater than 350 microinches. The specification provides at pages 12-15 at least one process for forming such a magnetic recording medium. The specification provides at page 15, line 25 to page 16, line 13 a test method for determining

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the Abrasivity Index. The specification provides at page 16, line 26 to page 18, line 4 at least one example of a magnetic recording medium having a magnetic coating characterized by Abrasivity Index of not greater than 350 microinches. Thus, it is believed that the scope of the enablement provided by the specification is commensurate with the scope of the claims, and the claims should be given their broadest reasonable interpretation consistent with the disclosure provided throughout the specification, including the selected portions identified above.

The test for enablement under 35 U.S.C. §112, first paragraph, is "whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation." *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217-1223 (Fed. Cir. 1988). "[A] considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

Factors for determining whether experimentation is "undue" include "(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims." *Id.* The last factor, the breadth of the claims, "requires that the scope of a claim's ... bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art." *In re Fisher*, 166 USPQ 18, 24 (CCPA 1970).

It is respectfully submitted that the specification enables one of skill in the art to fabricate a magnetic recording medium having a magnetic coating characterized by Abrasivity Index of not greater than 350 microinches, when the magnetic recording medium is processed as described in the specification at least at pages 12-15 and when the Abrasivity Index is quantified as provided for in the specification at least at page 15, line 25 to page 16, line 13. This is particularly true in light of the Comparative Examples described in the specification detailing

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magnetic recording media processed differently and having an Abrasivity Index of greater than 1300 microinches. Thus, it is believed that the enablement provided by the specification is commensurate with the scope of protection sought by the claims, such that the rejections to the claims should be withdrawn.

We respectfully request that the rejections to claims 1-10 and 16-24 under 35 U.S.C. § 112, first paragraph, be withdrawn.

35 U.S.C. §§ 102 and 103 Rejections

Claims 1-10, 16, 19, and 21-23 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious, over Mori. Claims 1-10, 16-19, and 21-24 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious, over Kakuta.

Applicants' prior arguments are incorporated herein by reference to this Response.

The Office Action concedes that Mori does not disclose the claimed abrasivity index of the recording medium. The Examiner's position is that the disclosure of Mori inherently satisfies the claim limitation directed abrasivity index since Mori discloses a magnetic recording medium including magnetic particles dispersed in a binder and including an alumina head cleaning agent.

Kakuta discloses a high output (high speed) magnetic tape. Kakuta discloses at column 1, lines 40-55 that durability of the high speed magnetic tape can be enhanced by the addition of an abrasive to the magnetic layer, but to impart strength capable of withstanding high speed use, it is necessary to use large amounts of abrasive. The use of large amounts of abrasive lowers the maximum magnetic flux density and adds wear to the tape head which shortens the life of the magnetic tape head. Kakuta admits that studies to address this problem are underway, "but no full achievements have been accomplished." *Kakuta* at column 1, lines 52-55.

Regarding the alumina added as an abrasive, Kakuta provides at column 3, lines 28-36 that the particle size and the amount of alumina used is selected to be within a range employed for "ordinary magnetic tape." (Emphasis added).

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The Office Action concedes at page 6 that Kakuta does not disclose the claimed abrasivity index of the recording medium. The Examiner's position is that the structure taught by Kakuta inherently satisfies the claim limitations directed to abrasivity index since Kakuta discloses a structure that is alleged to be substantially the same.

The Office Action cites to *In re Best, Bolton & Show*, 195 U.S.P.Q. 430 for support that the burden of proof shifts to the Applicant to show that prior art products do not necessarily or inherently possess characteristics of the claimed products when the rejection is based on inherency under 35 U.S.C. § 102 or on a *prima facie* case of obviousness under 35 U.S.C. § 103. To this end, the Applicant is required to come forward with evidence establishing that the prior art products do not necessarily or inherently possess the characteristics of the claimed product, and/or that there exists an unobvious difference between the claimed product and the prior art. MPEP §§ 2112 V, 2113.

Evidence on the record establishes that the cited references do not inherently satisfy the claimed Abrasivity Index limitation.

The application as filed includes evidence that the magnetic tapes known in the art and as fabricated by the cited references do not possess, inherently or otherwise, the characteristics of the claimed magnetic recording medium. Beginning at page 16, line 26, a first exemplary dual layer magnetic recording medium (Example 1) is described including a magnetic coating having an upper layer and a lower layer deposited on a first side of a substrate, and a back coat deposited on an opposing side of the substrate. Example 1 is processed in a burnishing operation including lapping stations, the first of which employs a 0.5 micro silicon carbide film and the second station employing a 3.0 micro silicon carbide film. Examples 2 and 3 are fabricated in a similar manner including certain differences described on page 18 between lines 6 and 19. Comparative Example 1 includes the same upper and lower layer formulations as Example 1, but was burnished in two lapping stations; each of which employed a 0.5 micron silicon carbide lapping film. Comparative example 2, described at page 19, lines 1-4, represents multiple samples of available, off-the-shelf, magnetic storage medium.

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Table 1 at page 19 about line 10 shows that Examples 1-3 all provide an Abrasivity Index of less than about 350 microinches. Comparative Example 1 (burnished in a different manner) has an Abrasivity Index of 1310 microinches. Comparative Example 2, representing the known magnetic storage media, has an Abrasivity Index of 449 microinches.

It is respectfully submitted that data provided in the application as filed beginning at page 16, line 26 and extending through page 19, line 12 is evidence that shows the magnetic recording medium as claimed provides an unobvious difference over the cited references. In particular, the magnetic tape described in Kakuta having additive levels of "ordinary" magnetic tape was burnished and could reasonably be considered similar to the Comparative Example 1 media that was burnished in a two station lapping process having an Abrasivity Index of 1310 microinches. The magnetic recording medium disclosed by Mori could reasonably be considered similar to the media described in Comparative Example 2 (off-the-shelf media) having an Abrasivity Index of 449.

As supported by Table 1, magnetic recording medium processed according to Examples 1, 2, and 3 provides an Abrasivity Index that is quantifiable and has a value of less than 350 microinches. The evidence provided in the application as filed between pages 16 and 19 and in Table 1 supports Applicants' assertion that Mori (silent as to burnishing conditions) and Kakuta (burnished with a saffire blade) fail to teach or suggest an Abrasivity Index of less than 350 microinches as claimed.

The evidence provided in Table 1 rebuts the Examiner's assertion that the cited references necessarily or inherently possess the characteristics of the claimed magnetic recording medium. For the above stated reasons, the pending claims cannot be anticipated by Mori or by Kakuta.

Mori is silent regarding the claimed Abrasivity Index. Any motivation to modify Mori would result in either 1) a magnetic tape similar to other known off-the-shelf tapes having an Abrasivity Index of about 449 microinches, or 2) a burnished magnetic tape having an Abrasivity Index of about 1300 microinches. Thus, even if modified, independent claim 1 is not rendered obvious over Mori.

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Kakuta provides for the burnishing magnetic tape, but as evidenced by Comparative Example 1, burnishing can result in an Abrasivity Index of greater than 1300 microinches. The mere fact that the Kakuta magnetic tape is burnished does not support a logical conclusion that the burnished tape will have a reduced Abrasivity Index (i.e., an Abrasivity Index of less than 1310 microinches for Comparative Example 1), much less an Abrasivity Index of less than 350 microinches as claimed. Nothing in the cited references provides a basis for modifying the burnishing briefly mentioned in Kakuta to achieve the lower Abrasivity Index of less than 350 microinches. In fact, the burnishing described in Kakuta is likely to result in an abrasivity index of greater than 1,000 microinches.

Further evidence that the cited references fail to teach or suggest an Abrasivity Index of less than 350 microinches is provided in that Kakuta expressly states that studies investigating the optimum amount of addition, size, hardness, and shape of abrasive are underway and have not yet reached "full achievements." From this statement, it appears that Kakuta not only fails to teach or suggest an Abrasivity Index of less than 350 microinches, but that Kakuta recognizes that much remains to be learned by Kakuta in the art of magnetic media.

Moreover, Kakuta makes references to additives selected to be within a range for "ordinary" magnetic tape, such that any purported modification to the burnishing step in Kakuta is likely to result in an Abrasivity Index similar to ordinary off-the-shelf magnetic tapes of about 449 microinches (Comparative Example 1).

For all of these reasons, the pending claims cannot be anticipated or rendered obvious by the cited references.

There is no basis under law for the Examiner's position that the claims must be limited to a structure that is limited to the specific materials or processes described in the examples. Nowhere have Applicants demonstrated any intention to limit the scope of the claims by using words or expressions of manifest exclusion or restriction. Consequently, it is appropriate that the claims be given their broadest reasonable interpretation that is consistent with the specification.

It is respectfully requested that the rejections to claims 1-10, 16, 19, and 21-23 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious, over

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Mori be withdrawn. It is respectfully requested that the rejections to claims 1-10, 16-19, and 21-24 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious, over Kakuta be withdrawn.

New Claims

Claims 25-27 are newly presented to particularly point and distinctly claim subject matter that is not taught or suggested by the cited references. Claim 25 requires an exposed upper layer of the magnetic coating that is selectively configured to reduce the Abrasivity Index of the magnetic coating to between about 150 – 350 microinches. Support for the language of this claim is located in the specification at least at pages 6-10 and in claims 11-15 as originally filed. None of the cited references teach or suggest selectively configuring the upper layer to reduce the Abrasivity Index of the magnetic coating to between about 150 – 350 microinches.

Claim 26 provides a magnetic recording medium including a magnetic coating deposited and dried over a front side of a non-magnetic substrate, the magnetic coating including a lower layer deposited onto the front side of the non-magnetic substrate and an upper layer deposited onto the lower layer, at least one of the lower layer and the upper layer including particles providing the dried magnetic coating with an initial abrasivity of greater than 350 microinches, where the upper layer is configured to reduce the initial abrasivity of the dried magnetic coating such that the upper layer is characterized by an Abrasivity Index of not greater than 350 microinches. Support for the language of new claim 26 is located throughout the specification, including at least at claims 11 and 15 as originally filed.

None of the cited references, alone or in combination, provide for a dried magnetic coating having an initial abrasivity of greater than 350 microinches, and configuring the upper layer to reduce the initial abrasivity of the dried magnetic coating such that the upper layer is characterized by an abrasivity index of not greater than 350 microinches. Claim 27 further defines patentably distinct independent claim 26.

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It is respectfully submitted that claims 25-27 provide patentable subject matter that is not taught or suggested by the cited references, and are in condition for allowance.

CONCLUSION

In view of the above, Applicants respectfully submit that pending claims 1-10 and 16-27 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-10 and 16-27 is respectfully requested.

No fee is required under 37 C.F.R. § 1.16(h) for the addition of independent claim 26, but a fee of \$100 is required under 37 C.F.R. § 1.16(i) for two claims in excess of 20. If other fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 09-0069.

The Examiner is invited to telephone the Applicants' representative at the below-listed number to facilitate prosecution of this application. Any inquiry regarding this Amendment and Response should be directed to either Nick Baumann at Telephone No. (612) 573-0669, Facsimile No. (612) 573-2005 or to Eric D. Levinson at Telephone No. (651) 704-3604, Facsimile No. (651) 704-5951.

Respectfully submitted,

Date: 7/16/07


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